

### **DETAILED ACTION**

Citation to the Specification will be in the following format: (S. # : ¶/L) where # denotes the page number and ¶/L denotes the paragraph number or line number. Citation to patent literature will be in the form (Inventor # : LL) where # is the column number and LL is the line number. Citation to the pre-grant publication literature will be in the following format (Inventor # : ¶) where # denotes the page number and ¶ denotes the paragraph number.

### ***Response to Arguments***

Applicant's arguments filed 7/7/2008 have been fully considered but they are not persuasive. The Examiner addresses each in turn:

#### Claim Rejections – 35 U.S.C. §112, first paragraph (written description)

The written description was based on the lack of sufficient, relevant, identifying characteristics that would convey to the skilled artisan that Applicants had possession of the claimed invention. In response, Applicants reassert their declaration that was addressed in the previous office. Further, Applicants stress that “[i]nformation which is well known in the art need not be described in detail.” (Remarks of 7/7/2008 at 7, citing MPEP 2163 II(A)(2)). Thus, apparently Applicants believe that the reagents, temperatures, pressures, etc. (*i.e.* that information which would be sufficient, relevant, identifying characteristics) are well known. The Examiner, as per his authority under 37 C.F.R. 1.105, requests this information be submitted. They are considered material to patentability. Applicants further state:

Thus, the central issues are whether (1) the functionalization of nanotubes, and (2) the use of computer-aided molecular design as

an aid in synthesizing/selecting molecules for a specified use were well known in the art at the time of the invention, so that there is no legal requirement for the Applicants to have described these in further detail in the Application.

(Remarks of 7/7/2008 at 7). These issues are not remotely relevant to the rejection. The claims make no mention of (1) functionalizing or (2) the use of computer-aided molecular design. This statement by Applicants indicates that the claims do not correspond in scope with that which Applicants regard as their invention. As such, a rejection under 35 U.S.C. 112, second paragraph is made, *infra* for failure to claim their invention. Clearly, Applicants believe that running this computer program (which insofar as the Examiner can determine is the only thing they have done) is inventive, but their claims are drawn to methods that are not tied to a computer.

Applicants state that the Examiner has resolved the skilled artisan to be a Nobel Prize winner. (Remarks of 7/7/2008 at 8). This is a mischaracterization of the office action, which stated "Skilled artisans in the nanotube synthesis art are chemists." (Non-final Office Action dated 3/31/2008 at 3). Richard Smalley's Nobel Prize was mentioned in passing, should Applicants care to traverse on those grounds. Applicants themselves liken inventor Montgomery's qualifications to "putting up drywall." (Remarks of 7/7/2008 at 8). This is not what the office action stated, and again, Applicants mischaracterize the office action. While the Applicant (a mechanical engineer) might think "three-dimensional nanotube" synthesis is as simple as clicking buttons on a computer screen, much like AutoCAD®, making "three-dimensional nanotube" structures is an unpredictable art that does not lend itself to mechanical manipulations (like putting up drywall).

Applicants have alleged that this invention has been “conceptualized.” (Remarks of 7/7/2008 at 8). The Examiner respectfully disagrees. The Specification is so lacking, it is unclear that Applicants have even conceived of these “three-dimensional nanotube structures,” let alone shown possession of them. “Conception [in the chemical arts] requires (1) the idea of the structure of the chemical compound, and (2) possession of an operative method of making it.” *Oka v. Youssefye*, 7 USPQ 2d 1169, 1171 (Fed. Cir. 1988). The Specification contains no such method of making the compound. While the claims are indeed drawn to an alleged method of making the compound, it is done with redundant, functional language (connecting nanotubes with “connector molecules”). It is akin to writing a claim that says “A method for curing AIDS comprising administering an AIDS curing agent.”

Generally speaking, the arguments are not focused on the rejection – which stated (over a year and a half ago) that the specification lacked the details necessary to convey possession (process conditions, reagents, etc.). Applicants have chosen to focus on remarks that were in response to arguments etc., but have yet to address the core issue from the first rejection, namely the lack of details that would convey to one of skill in the art that Applicants had possession of the claimed invention. While a declaration was submitted, it was by an interested party who is not a skilled artisan. Even if Applicants are to be believed that “the prior art utilized connector molecules to attract and bond with two open-ended nanotubes to create ropelike carbon nanotube structures” (Remarks of 7/7/2008 at 9), Applicants have effectively admitted that their method is old and known. As such, an additional rejection is applied *infra*. The rejection is MAINTAINED.

Applicants have not traversed this rejection. If they have, they certainly have not attacked the *In re Wands* factors. No evidence was offered that addresses lack of reactions, reagents, operating conditions (temperature, pressure, and the like). Applicants make reference to “HyperChem,” but again, HyperChem (insofar as the Examiner is aware) does not mix reagents, introduce them into a reactor, etc. Applicants have provided no facts or affidavits from one of ordinary skill in the art. The skilled artisan is not a mechanical engineer. The skilled artisan is a chemist. As such, the declaration (which has been considered) is given little weight as being offered by one unskilled in the art.

The simplest thing for Applicants to do to traverse this rejection is to point to where the Specification teaches how to perform the process of, for example Claim 30. Where does the sulfur come from? How is the reaction carried out? What temperature is the reaction carried out at? What pressure is employed? As stated before, with none of this information taught and no experimental results provided, arguably infinite and certainly undue experimentation is necessary to practice the claimed invention.

It is noted that the Applicants have not answered the question posed in the last office action, which stated “how do you enable something without stating somewhere how it is made?” The Examiner expects an answer to this question in any response to this office action. A failure to address this question will result in the response being treated as “non-responsive.” Further, to the extent Applicants wish to rely on the “state of the prior art,” examples of this should be filed on an appropriate IDS. The Examiner considers said prior art to be material to patentability. The rejection is MAINTAINED.

Claim Rejections – 35 U.S.C. §§102-103

With respect to the rejection over Smalley, Applicants arguments are not persuasive. The catalysts “connect” nanotubes. Furthermore, given that Applicants flat out stated in their arguments that the independent claims are not to be limited to the detailed  $C_{19}S_6H_{24}$  (or whatever they consider to be their connector molecule), the arguments urging a narrower construction are somewhat disingenuous.

With respect to the rejection over the Johnsamuel, a rigid application of a “teaching-suggestion-motivation” test, which is apparently what the Applicants are arguing, is not the state of the law. *See KSR International Co. v. Teleflex, Inc.*, 550 U.S. \_\_\_, 127 S. Ct. 1727, 1741 (2007). (“The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents.”). If “Hyperchem” lets the skilled artisan speculate on molecular structures, its *prima facie* obvious to use it to speculate as Applicants have. Furthermore, given that “Hyperchem” predicts these molecules with 100% accuracy (because it churns out exactly what it is told to), then clearly no motivation is needed where “there are a finite number of identified, predictable solutions.” *Id.* at 1742. Put another way, applicant has purchased a computer program made by others and used it for its intended purpose, following the path of scientists who made real materials in a lab. This is the essence of obviousness. Anything beyond this is not sufficiently described/enabled.

Claims 1-20 and 28-31 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claims 1 and 28 fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in the reply filed 7/7/2008. In that paper, applicant has stated that central issues to their case are functionalization of nanotubes and the use of computer-aided molecular design, and this statement indicates that the invention is different from what is defined in the claim(s) because neither are in the claim. All other claims import the defects of the independent claims.

**All other rejections as set forth in the non-final office action dated 3/31/2008 are expressly incorporated herein by reference.**

#### *Claim Rejections - 35 USC §§ 102-103*

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 1 and 28 are rejected under 35 U.S.C. 102 as being anticipated by Applicants admissions. Applicants have stated on and for the record that: “connector molecules were already used at the time of the invention for linearly connecting nanotubes.” (Remarks of 7/7/2008 at 10). By definition, nanotubes are “three-dimensional.”

**All other rejections as set forth in the non-final office action dated 3/31/2008 are expressly incorporated herein by reference.**

#### *Conclusion*

The patent laws "promote disclosure of inventions, not of research plans." *Friers v. Revel*, 984 F.2d 1164, 1169 (Fed. Cir. 1993). Applicants must answer how this process is performed. A failure to do so will result in any response being held non-responsive. Perhaps a CIP with claims filed to computer modeling is a more appropriate course of action.

**THIS ACTION IS MADE FINAL.** The new grounds of rejection (admission and 112) are necessitated by Applicants reply. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). All amendments made in response to this Office Action must be accompanied by a pinpoint citation to the Specification (i.e. page and paragraph or line number) to indicate where Applicants are drawing their support.

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL C. MCCracken whose telephone number is (571)272-6537. The examiner can normally be reached on Monday through Friday, 9 AM - 6 PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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